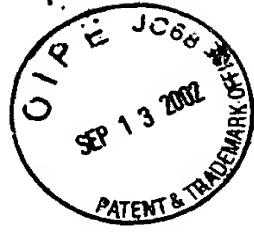


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| APPROVED | O.G. FIG. |
| BY | CLASS |
| DRAFTSMAN | SUBCLASS |

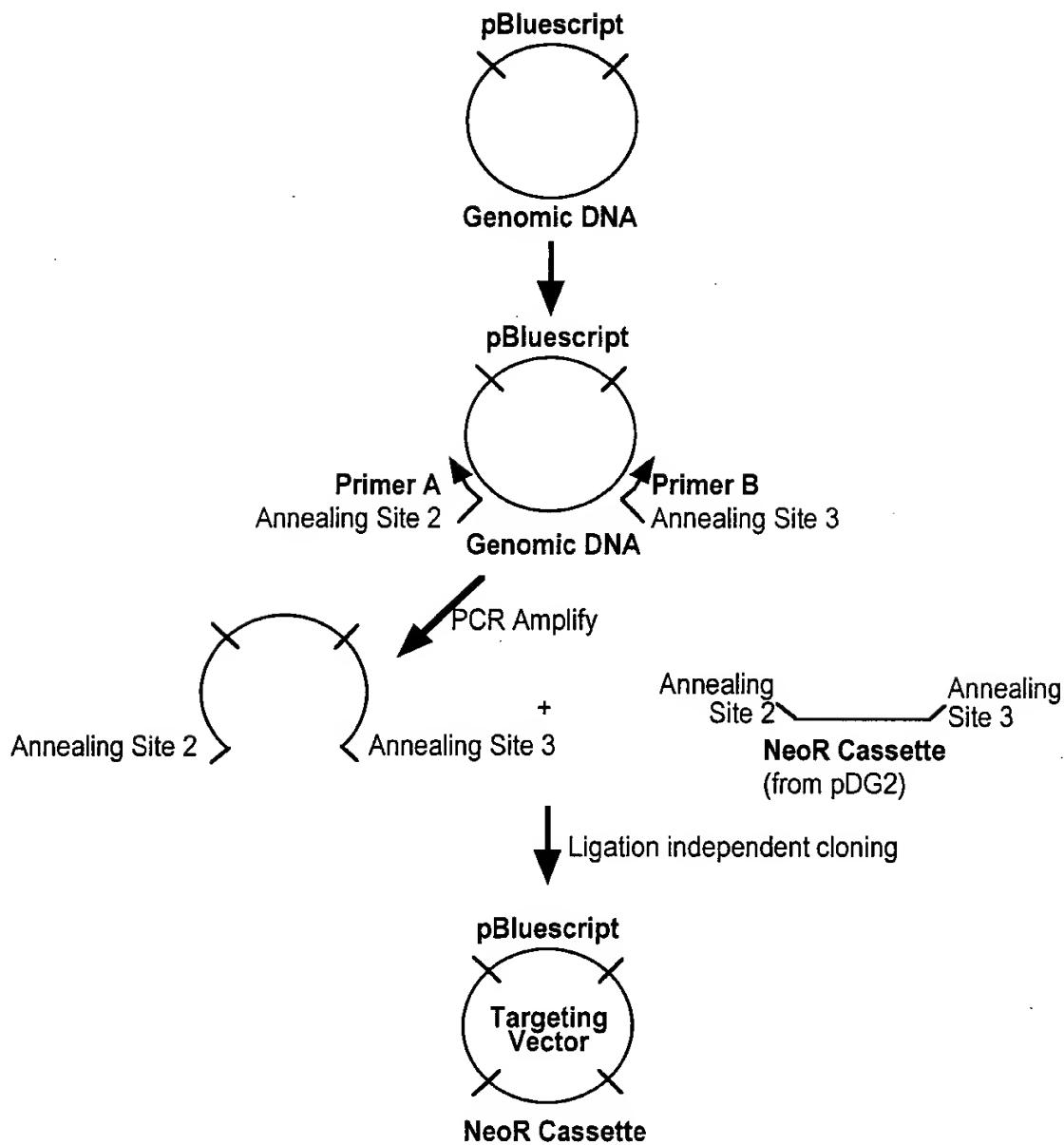


Fig. 1



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| APPROVED | O.G. FIG. | SUBCLASS |
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| DRAFTSMAN | | |

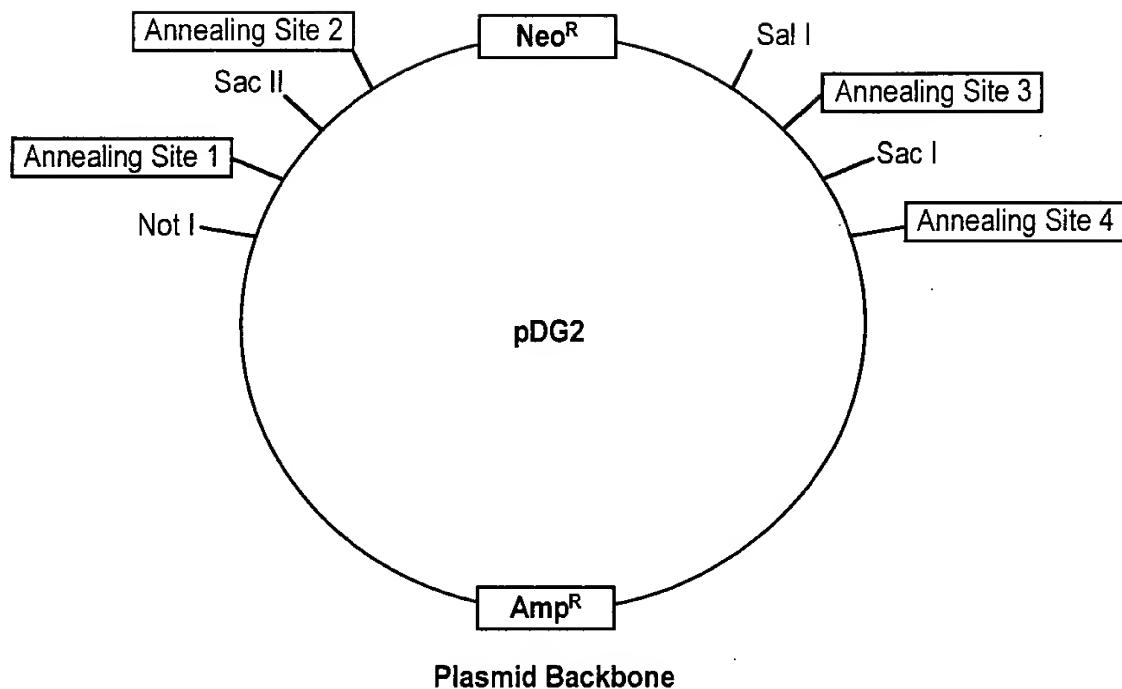
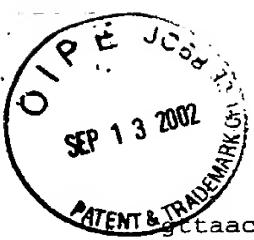


Fig. 2A



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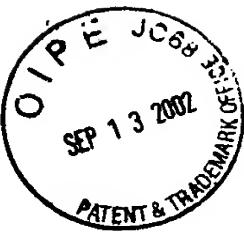
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| APPROVED BY | O.G. FIG. | SUBCLASS |
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Fig. 2B



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| APPROVED | O.G. FIG. |
| BY | CLASS |
| DRAFTSMAN | SUBCLASS |

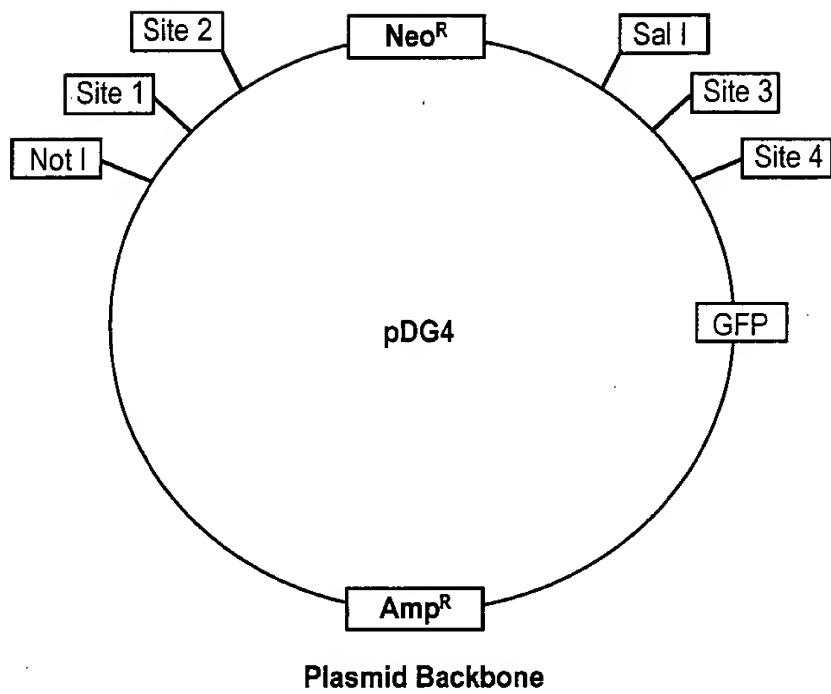


Fig. 3A



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| APPROVED | O.G. FIG. | |
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| DRAFTSMAN | | |

Fig. 3b-1

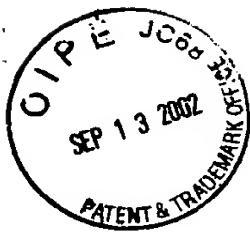


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| APPROVED | O.G. FIG. | SUBCLASS |
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| DRAFTSMAN | | |

tcttcctcatctccgggccttcgacctgcagccaatatggatcgccattgaacaagatggattgcacgcaggttctccg
ggcgttgggtggagaggctattcgctatgactggcacaacagacaatcgctgtatgccgcgttccggct
cagcgcagggcgcggcgttgcgtcaagaccgacctgtccgtgcctgaatgaactgcaggacgaggcagcgcggct
atcgtggctggcacacgacggcggttcgtgcagctgtcgtcactgaagcgggaaggactggctgtatt
ggcgaagtgcggggcaggatctctgtcatctcacattgcgtccgcgagaaagtatccatcatggctgtatgcggc
ggctgcatacgcctgtatccggctacctgcgtccattgcaccaccaagcgaacatcgcatcgagcgcacgtactcgatgg
agccggcttgcgtcgtcaggatgatctggacgaagagcatcagggtcgcgcagccgaactgttcgcgcaggctcaaggcg
cgcatgcccacggcgatgatctcgtcgtgacccatggcgatgcctgtgcgaatatcatgggtggaaaatggccgcttt
ctggattcatcgactgtggccggctgggtgtggcgaccgctatcaggacatagcgttgctaccctgtatattgctgaaga
gcttggcggcgaatgggctgaccgcttcgtgttacggatgcgcgtcccgattcgcatcgcccttatcgc
cttcttgacgagttcttgatggggatcgatccgtcgttaagtctgcagaaaattgtatctattaaacaataaagatgtc
cactaaaatggaagttttcctgtcatacttgttaagaagggtgagaacagagttacccatatttgaatggaaggattgga
gctacgggggtgggggtgggattagataaatgcgtctttactgaaggctttactattgtttatgataatgt
ttcatagttggatataattaaacaagcAAAacaaattaaggccagctcattccctccactcatgtatctatagatct
atagatctcgtggatcattttcttgattccactttgtggttctaagtactgtgggttccaaatgtgtcagtt
tcatagcctgaagaacagagatcagcagccctgttccacatacacttcatttcgtattgtttgcctaaatgtctaaattcca
tcagaagctgactctagatctggatccggcagctaggccgtcgcacccgtacccctcttagtcaaggccttaagtgagtcgtat
ccgtttagctcgacgacacaggacacgcAAattaaggccggccgtacccctcttagtcaaggccttaagtgagtcgtat
tacggactggccgtctttacaacgtcgtactggaaaaccctggcgtaaccaacttaatgccttgacgcacatcccc
cttcgcggcagctggcgtaatagcgaagaggcccgcaccgatgcgcctccaaacagttgcgcagcctgaatggcgaatggcg
cttcgttggtaataaagcccgttcggcggttttttt

Fig. 3B-2



| | | |
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| APPROVED BY | O.G. FIG. CLASS | SUBCLASS |
| DRAFTSMAN | | |

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| Annealing Site | Sequence | Sequence after digestion |
|----------------|--|---|
| 1 | 5' tgtgctccctttggcttgctccaa... 3' 3' acacaggagaaccgaacgaagggtt... 5' | 5' tgtgctccctttggcttgcttccaa... 3' 3' tt... 5' |
| 2 | 5' ctggttcttgtctggcttggccaa... 3' 3' gaccaagaacacgaccgaacgggtt... 5' | 5' ctggttcttgtctggcttggccaa... 3' 3' tt... 5' |
| 3 | 5' ggtoctcgctctgtgtccggttcaa... 3' 3' ccaggagcggagacacaggcaactt... 5' | 5' ggtoctcgctctgtgtccggttcaa... 3' 3' tt... 5' |
| 4 | 5' tttgcgtgtccctgtgtcgaa... 3' 3' aaacgcacaggacacagcagctt... 5' | 5' tttgcgtgtccctgtgtcgaa... 3' 3' tt... 5' |

Fig. 4



| | |
|-----------------------------|--------------------------------|
| APPROVED BY DRAFTSMAN | O.G. FIG. CLASS SUBCLASS |
|-----------------------------|--------------------------------|

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| Annealing Site | Sequence | Sequence after digestion |
|----------------|--|--|
| 1 | 5' AAtgtgctccctttggcttCCGC 3' 3' Ttacacgaggagaaacccaacgaaagg | 5' AA 3' Ttacacgaggagaaacccaacgaaagg |
| 2 | 5' AAActggttcttgtctggccCGC 3' 3' Ttgaccacaagaacacgaccgaaccggg | 5' AA 3' Ttgaccacaagaacacgaccgaaccggg |
| 3 | 5' AAGgttctcgcttgtgttGAGCT 3' 3' Ttcccaggaggcgagacacaggcaac | 5' AA 3' Ttcccaggaggcgagacacaggcaac |
| 4 | 5' AATttgcgtgtccctgtgtGAGCT 3' 3' Ttaaacgcacaggacacaggcagc | 5' AA 3' Ttaaacgcacaggacacaggcagc |

Fig. 5



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| | |
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| APPROVED | O.G. FIG. |
| BY | CLASS |
| DRAFTSMAN | SUBCLASS |

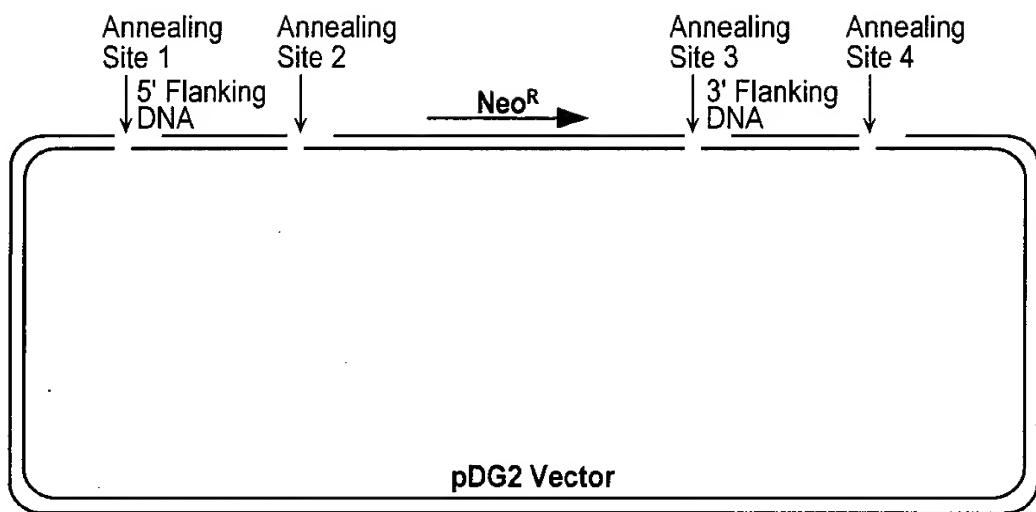


Fig. 6



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| APPROVED BY DRAFTSMAN | O.G. FIG. CLASS | SUBCLASS |
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| | | |

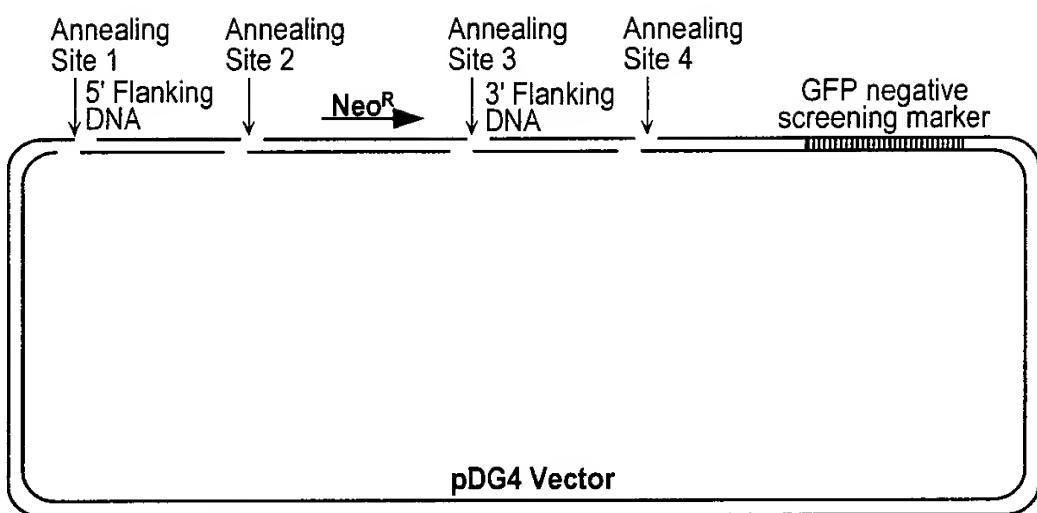


Fig. 7



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| APPROVED | O.G. FIG. | SUBCLASS |
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GAATTCCAACCTCAGCTTGACGTGGGGCCTATTGAACCTCAATTGCTGGAAACTGCCAGGAAAGGCTGAGAGCTGAACCC
CTCTTGGGACAGCTAAAGGGAGTCCTCACCATGGGTGAGGTGACAGCAGAGGAGGTAGAAAAGTCCTGGATTCAAATAT
TGGCTTGCCAAACAATACTATAACCTCACTACCAGGGAAAGGTCACTCAGACCTCCTCGGGGCCAAGGAGGCAGCTGTG
GACTTCAGCAACTACCACCGATGTGAACAGCGTAGAGGGAGAGTGAAGATCATCTTGACCTCCTGGGGACGTTAGGGAGA
TACAGGCTGAGAAATGCACATTCAATGTCAATGAAGAAGCTCTGCTTCCCTCGGGCTGACCGAGTGAGCTGTTCATGTA
CAGGACCCGCAACGGCATCGCCGAGCTGGGCACTAGGGCTCTCAATGTCCACAAGGATGCTGTGCTAGAGGACTGCTGGTG
ATGCCCGACTCCGAGATTGTCTTCCCTCTGGACATGGGTGTCGTGGGCCACGTGCAACTCCAAAAGATTGCAATGTCC
CCAACACAGAAGAGGATGAGCATTCTGTGACTTGTGACAATCTACAGAATATCAGACCAAGAACATCTGGCTTCCC
CATCATGAATGGGAAGGATGTGGTAGCCATAATCATGGCTGTGAATAAAATAGATGAACCCCCTTCACCAAGAGAGATGAA
GAGATTCTCTCAAGTACCTCAACTTGTGAACCTGTATGAAGGTATTCCACCTGAGCTACCTGCACAACGTGAGACTC
GTCGGGCGAGATTGCTGTGGCTGGAGCAAGGTCTTGAGGAGCTCACGGATATAGAGAGGAGTTCCACAAGGCCCT
GTACACGGCTGGGCTTCTCAACTGTGACAGAATCTCGTAGGACTCTTAGACATGACCAACAGAAGGAATTTTTGAT
GTGTGGGCCAGTTCTGTGGCGAGGCTCCAGCTTACTCTGGTCCAGGACTCCAGACGGAAGGGAAATTAACTTCTACAAGG
TCATTGACTACATCCTGCACGGCAAAGAACATCAAAGTCATCCCGAACCCACCGCTGACACTGGCTCTAGTGAGTGG
TCTACCCCCCTACGTGGCTCAAAATGGTCTGATCTGCAATATAATGAATGCGCCTGAGAGGACTTTTGAAATTCCAGAAA
GAGCCTCTGGATGAGCTGGGTGGATGATTAAAAATGACTCTCATGCCCATCGTACAACAAGGAAGAGATCGTCGGCG
TGGCCACATTTACAACCGAAAGATGGGAAGCCCTCGACACCTACGAGCTCATGAAACAGCTCGAGAACAGGAAGGATATCT
GGGATGGTCAGTCTAAACCGTACGGAGCTGGAGCTGGTAAGTGGCGCATCCAGATGTACTACGAGCTCAGAGTGTGG
AAATATCACGTGAAGTGTGATAACGAAGAAATCCAGAACAGATCTGAAAACCAGAGAGGAGTGTACGGCAAAGAGCGTGG
GCGAGGAGGAGGAGCTGGCTGAGATCTGCAAAGAGAACCTCCAGCAGCGGAGTCATACGAAATCAACAAGTCCACTTCAG
CGACCTGCCACTCACGGAGCTGGAGCTGGTAAGTGGCGCATCCAGATGTACTACGAGCTCAGAGTGTGGACAAGTCCAC
ATCCCGCAAGAGGCCCTGGTGCCTCATGTTACGCTAAGCAAAGGCTACCGGAGAACATCTACCAACTGGCGCATG
GCTTCACCGTGGGCAACCATGTTCTCTGCTGGTACAGGAAAGCTGAAACGGTACTTCACTGATCTAGAGGCCCTGG
ATGGTCACTGCTGCCCTCTGTGACATGACATCGACACAGGGACGAACAACCTCTACCGAGATGAAATCACAGAACCCCTGG
CCAAGCTCCATGGGTCTCCATCTGGAAAGGCATCTTGGAGTTGGAAAACACTCTGTGAGAGATGAGAGGCCTGAATAT
CTTCCAGAACCTGAATGCCGGCAGCATGAGCACGCATCCACATGATGGACATCGCAGTCATGCCACAGACCTGGCTTG
TATTTCAAGAAAAGGACCATGTTCCAGAACGATTGTGGATCAGTCAAAGACATATGAGAGTACCCAGGAGTGGACCCAGTACA
TGATGCTGGAGCAGACACCGGAAGGAAATTGTGATGGCATGATGATGACGCCCTGTGATCTCTGAGCCATCACAAACCTG
GGAGGTACAGAGCAAGGTGGCTCTGCTGGCTGCTGAATTCTGGAGCAAGGTGACCTGGAGCGCACAGTGTGCTGCAGCAG
AATCCCATTCCCAGATGGACAGAACAAAGCGGGATGAGCTCCCCAAGCTCAAGTCGGCTTCATGACTTTGTGCACTT
TTGTCTATAAGGAGTTCTCCCAGTTCTGAGGAGATTACACCCATGCTGGATGGATCACTAACACCGCAAGGAATGGAA
GGCGCTGGCTGATGAGTACGAACGCCAGGAGAACCTCCAGGGTGCACCTGCATCTAAGCTCTGTTGACCTGGAG
TCCGGGAACCCAGCCAGGAGGAAACCACTCCAGGGTGCACCTGCATCTAAGCTCTGTTGACCTGGAG
AGCAGGGCAGGCCCTCAGGAAGGAGGAGGTCACTGGACAGTTAAAGAACCCAGGAGCTGGAAAGTGGTGGCAA
CACAGCAGGCATCTATCATCAAATGGCTTAGACATTGGTTCTGTTCTGTTCTGTTCTGTTCTGTTCTGTTCTGTTCTG
TCTGTTCTGTTCTGTTCTGCTGCTGCTGTTCTGTTCTGTTCTGTTCTGTTCTGTTCTGTTCTGTTCTGTTCTGTTCTG
GACTGGGCTGGCCTCAAACCTCACAGGCCCTCACCTGCCTCTGTCCTGAGTTCTGAGTTAATAAGCAAGCACCACACACA
GGGACTTAGAGATTGTGTTAATTCTAAAAGTCTATGAGCTAGCCTAATATTCTAGACTTCATATACTGACTTGATAAT
TTTTGTTCTATAATGTTGTAATTCTTAAAGCTTTAAACTTAGTGTGTTATTATAAAAGTGTGCTAATTCCAAA
AGTACAGAATTACCGGAATT

(SEQ ID NO:19)

Fig. 8A



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Targeting Vector (5' arm; 200 bp flanking neo insert):

GGAGGTAGAAAAGTCCTGGATTCAAATATTGGCTTGCCAAACAGTACTATAACTTTCACTACCAGGGGGAGGT
CATCTCAGACCTCCTCGGGGCCAAGGAGGCAGCCGTGGACTTCAGCAACTACCACGATGTGAACAGCGTAGAGGA
GAGTGAGATCATCTTGACCTCCTGCGGGACGTTCAAGGAGAACTTACAGG
(SEQ ID NO:20)

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| APPROVED | O.G. FIG. | SUBCLASS |
| BY | CLASS | |
| DRAFTSMAN | | |

Targeting Vector (3' arm; 200 bp flanking neo insert):

TGTCGTGGGCCACGTCGCACACTCCAAAAAGATTCCAATGTCCCCAACACAGAAGAGGTACGCTCTCCCCATAA
GATGGATGTACGAATGCACTGTTCCCTGGGTTCTGGAGTCCAAGCTGGCTGGCTGTTGCTGGCCACCAACCT
GGCTAGTCATAGCACGATACCACTCTCTATTATAAAAATACCTAGAA
(SEQ ID NO:21)

Fig. 8B